AMENDMENT TO THE SPECIFICATION:

Please amend the specification as set forth below.

On page 4, please replace the second full paragraph beginning at line 25 and ending at line 35.

--Without loss of generality it may be assumed that the technology and corresponding unit costs, c_i, of the network elements used to construct the network are known, i.e., given ~~apriori~~ a priori. The challenge of network design is to determine the number, v_i, and placement of each of the network elements of the given types to minimize the total network cost under the constraint to service a specified traffic demand among the network terminations located at specific geographic locations. The strategy of the model of the present invention is to carefully estimate the products of the network element counts and respective costs while satisfying the external constraints, and thereby to estimate the total network cost using equation (2) above, but without explicitly establishing knowledge of the placement of every individual component within the network.--

On page 14, please replace the first full paragraph beginning at line 15 and ending at line 26.

--The variance of the degrees of nodes is defined according to equation (13e), which follows:

$$\sigma^2(\delta) \equiv \langle\delta^2\rangle - \langle\delta\rangle^2 \quad , \tag{13e}$$

and so like δ_i and $\langle\delta\rangle$, $\sigma^2(\delta)$ is a function only of the network graph, G. Note, however, unlike $\langle\delta\rangle$ there is no closed form expression for $\sigma^2(\delta)$ as a function only of N and L. Rather the variance of the degrees of nodes implicitly depends upon the details of the network connectivity and must be computed from a representation of the graph, such as [g] or an equivalent link-list. If the network graph, ~~or equivalently the link-list, is provided~~ or equivalently the link-list[[,]] is ~~provided~~ provided, then functions of the degrees of nodes, such as the variance, may be computed exactly.--

On page 25, please replace the first full paragraph beginning at line 15 and ending at line 31.

--Restoration capacity

The additional capacity added to links to ensure network survivability depends upon the types of failures considered, the restoration strategy ~~strategy~~, and the blocking characteristics of the cross-connects used to redirect the affected traffic over alternate routes. For the purpose of architectural comparisons, network survivability is very often defined in relation to single link failures (i.e., the network is designed and minimally sufficient capacity is deployed to ensure the network can support the traffic and is survivable against all single link failures). As explained earlier, this implies the network has sufficient extra capacity to restore all of the simultaneously failed demands sharing the common failed link. Extra capacity is counted in units of additional channel-links and is most often reported as a fractional increase above the total number of channel-links for minimum hop routing. Using that convention, the average number of channels on a link including extra capacity for restoration may be characterized according to equation (16a), which follows:

$$\langle W^{\kappa}\rangle \equiv \langle W^{o}\rangle\,(1 + \langle\kappa\rangle) \ . \qquad (16a)\text{--}$$

On page 40, please replace the first full paragraph beginning at line 3 and ending at line 6.

--The ratio of the add/drop traffic to total traffic for an individual ~~note~~ node may be formulated using equations (25) and (29a). For example, considering the case when $\sigma(W_T)$ is negligible, the result using equation (17d) for the extra capacity may be characterized according to equation (32a), which follows:--

On page 41, please replace the first full paragraph beginning at line 3 and ending at line 6.

--For the purpose of outlining the general principles of computing network costs using the network global expectation model, rudimentary cost structures are considered for the optical line system (OLS), electronic ~~and~~ cross-connect (EXC), and optical cross-connect (OXC). FIG. 7 depicts a high level block diagram of an exemplary architecture of OLS 710, EXC 720, and OXC 730 systems from a perspective near a node. In FIG. 7, termination-side traffic enters the network at a node via the EXC 720 where it is groomed (i.e., switched and multiplexed, into the fundamental units of inter-terminal bandwidth destined for specific nodes of the network). The groomed output channels from the EXC 720 then enter the OXC 730, where they are directed to line systems placed along the inter-terminal links of the network according to the traffic routing scheme determined by either a centralized or distributed management system. In the architecture considered in FIG. 7, the interfaces between network elements are illustratively optical translators (OTs), which ensure that the cost comparisons are under conditions of fixed network capability (features) and network performance.--

On page 50, please replace the first full paragraph beginning at line 4 and ending at line 15.

--Of course, the details of the cost crossover depend upon the particulars of the technology price points (cost structure and coefficients), and consequently, the graph of FIG. 8 is intended only to demonstrate the capabilities and possibilities of the global expectation model and not to make a definitive recommendation. It should be noted that herein it has been implicitly assumed via the cost structures that the respective cross-connects technologies are capable of providing the required switch and backplane capacities. In the absence of more refined cost structures that account for these limitations, other equations and graphs of the model may be used, such as the total number of required ports (equation (21b)) or the mean cross-connect traffic, to identify regions of the network traffic-node space that are beyond the capabilities of a particular architecture or technology.--